UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

January 17, 2002

Daniel Mathis
U.S. Department of Transportation
Federal Highways Administration
Suite 501 Evergreen Plaza
711 South Capitol Way
Olympia, Washington 98501-1284

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Silver Creek Fish Passage Barrier Removal Project, Lewis County, Washington (WSB-01-533)

Dear Mr. Mathis:

Enclosed is the National Marine Fisheries Service's (National Oceanic and Atmospheric Administration [NOAA] Fisheries) biological opinion (Opinion) concluding formal Endangered Species Act consultation on the Silver Creek Fish Passage Barrier Removal Project, Lewis County, Washington as described in Washington Department of Transportation's biological assessment (BA) dated November 2001. This Opinion addresses Lower Columbia River (LCR) steelhead (*Onchorynchus mykiss*) and LCR chinook.

NOAA Fisheries has determined that the proposed action is not likely to jeopardize the continued existence of the listed species described above. An Incidental Take Statement provides non-discretionary terms and conditions to minimize the potential for incidental take of listed species.

In addition, this document also serves as consultation on Essential Fish Habitat for chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*), under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600).

We appreciate the considerable effort and cooperation provided by your staff in completing this consultation. If you have any questions regarding this Opinion, please contact Bill Leonard at (360) 753-9887 of my staff in the Washington State Branch Office.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

Enclosure

cc: Becky Michaliszyn, WSDOT
Michael A. Kulbacki, FHWA

Endangered Species Act - Section 7 Consultation
Biological Opinion

And

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Silver Creek Fish Passage Barrier Removal Project, Lewis County, Washington
WSB-01-533

Agency: Federal Highways Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Issued by: for Michael R Course Date: January 17, 2003

D. Robert Lohn
Regional Administrator

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1.0 INTRODUCTION

1.1 Background and Consultation History

On December 27, 2001, the National Marine Fisheries Service (National Oceanic and Atmospheric Administration [NOAA] Fisheries) received a Biological Assessment (BA), a request for Endangered Species Act (ESA) section 7 consultation, an Essential Fish Habitat (EFH) assessment and request for consultation under the Magnuson-Stevens Fishery Conservation and Management Act, from the Federal Highway Administration (FHWA). Formal consultation was initiated on July 23, 2002. The BA and subsequent email from Kim Mueller described a proposal by Washington State Department of Transportation (WSDOT) to replace an existing culvert that is currently restricting fish passage. The culvert is located at mile 81.22 on State Route (SR) 12 in Lewis County, Washington.

The proposed project area occurs within areas occupied by the Lower Columbia River (LCR) chinook salmon (*Onchorhynchus tshawytscha*) and LCR steelhead (*O. mykiss*) Evolutionary Significant Units (ESU). Silver Creek drains into Mayfield Lake approximately 30 miles southeast of the city of Chehalis. The FHWA had determined that the project "may affect, and is likely to adversely affect" LCR chinook and LCR steelhead. The project is also located in habitat that has been designated as EFH for chinook and coho (*O. kisutch*) and the FHWA has concluded that the project will adversely affect EFH for these species.

The objective of the Biological Opinion (Opinion) is to determine whether the proposed project is likely to jeopardize the continued existence of LCR chinook or LCR steelhead. The standards for determining jeopardy are described in section 7(a)(2) of the ESA and further defined in 50 C.F.R. 402.14. The objective of the EFH consultation is to identify adverse effects to EFH and provide conservation recommendations to avoid, minimize, or otherwise avert these effects. This document presents NOAA Fisheries' results of the EFH consultation. These consultations are based on the information presented in the BA, EFH assessment, phone conversations, and email correspondence.

1.2 Description of the Proposed Action

FHWA proposes to fund WSDOT's replacement of an existing142-foot long by 8.5- by 6-foot multi-plate culvert with a 140-foot long by 18- by 10-foot rectangular, bottomless concrete structure. The culvert, located under approximately 8 feet of road fill, carries the flow of Silver Creek beneath SR 12. The existing culvert passes the 100-year flood, but often sustains water velocities high enough to preclude fish passage, is too small to meet fish-passage barrier removal criteria if retrofitted with baffles, and is also a low-flow depth barrier to upstream fish passage. This project is intended to address those deficiencies.

The Washington Department of Fish and Wildlife (WDFW) identified the culvert under SR 12 as a barrier to juvenile and adult anadromous fish (Clark 2001). The proposed culvert would reopen access to an estimated 42,000 square meters (approximately 5,000 linear meters) of habitat. For this reason, WDFW assigned a high priority to this culvert replacement.

1.2.1 Work-area Isolation & Fish Removal

Though listed fish are unlikely to be found in the project area in significant numbers, WSDOT will install block nets to isolate the work area from upstream and downstream aquatic animals, and use seine nets to remove all aquatic life from inside the block nets. Trained individuals may electrofish following netting to confirm that all fish have been removed from the project area. All collected animals will be returned to the stream after all species are identified and counted.

WSDOT will comply with a dewatering plan as approved by the WDFW habitat biologist issuing an HPA for this project. The basic plan elements are to:

1. construct a temporary bypass for water, using a temporary culvert, channel, or pump system;
2. screen all water intakes and outlets to prevent fish from entering (including those intakes inside the netted area);
3. build a sandbag and plastic sheeting dam inside the isolated area;
4. discharge water pumped out of the dewatered area into a nearby upland area where it can infiltrate to the stream without affecting water quality.

The above method will be used in reverse order to re-wet the project area. The seine nets will stay in place until the water flowing through the new structure is clean, clear, and suitable for fish.

1.2.2 Fish Passage Barrier Removal

WSDOT proposes to replace the existing culvert with an 140-foot long by 18- by 10-foot, bottomless concrete structure on pre-cast footings with a channel constructed inside to control the channel grade. WDFW personnel have assisted in the culvert designed, which complies with Fish Passage Design at Road Culverts (WDFW 1999) as reviewed by Larry Swenson (NOAA Fisheries Hydro Division, 2002), and Northwest Region Draft Fish Passage Criteria (guidance by NOAA Fisheries) (Brian Nordlund pers. comm).

After implementing Temporary Erosion and Sediment Control (TESC) measures and isolating the in-water work area, WSDOT will use hoe to remove the highway surface and road fill, to allow culvert removal. Subsequently, WSDOT will use a hoe and grader to excavate the area for placement of the footings and the new channel. After the bottomless pre-cast concrete structure is installed, the constructed streambed area will be covered with approximately two feet of clean streambed gravel.

WSDOT will store, refuel, and repair all equipment a minimum of 150 feet away from Silver Creek, and dispose of all waste materials generated during demolition and construction at a legal, permitted site away from wetlands and other sensitive areas.

1.3 Description of the Action Area

The action area is all areas to be affected directly or indirectly by the Federal action, including interrelated and interdependent activities. 50 C.F.R. 402.02. The action area for this action is the area of potential impact to salmonid species associated with actual project activities, and the transport and deposition of fine sediment originating from the project area. The action area extends from the upstream limit of the project to the mouth of Silver Creek at Mayfield Lake, in Lewis County. During operation the equipment will be staged primarily in the existing road; staging when equipment is out of use will be 150 feet away from the stream bank in the existing right of way, which describes the landward limit of the action area. Silver Creek is a stream that is 12 feet wide at bankfull flow. The banks are vegetated with a mixture of grasses, brush, and a small amount of woody vegetation.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined in 50 C.F.R. 402. The NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of injury and mortality attributed to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the continued existence of the listed species, then NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Guidance for making determinations of jeopardy is contained in *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids*, August 1999 (NOAA Fisheries 1999).

2.1.2 Biological Requirements

The relevant biological requirements are those necessary for LCR steelhead and LCR chinook to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to and survive various environmental conditions, and allow them to become self-sustaining in the natural environment.

Essential features of salmonid habitat that support their biological requirements include adequate substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space and safe passage conditions (Simenstad *et al.* 1982, Palmisano *et al.* 1993, Spence *et al.* 1996). For this consultation, the biological requirements which will be adversely affected are water quality, the disturbance of streambed and riparian habitat structures, and safe passage due to isolation and handling. The biological requirements are further defined as properly functioning condition (PFC) of habitat conditions that are relevant to any chinook or steelhead life stage. These habitat conditions include all parameters of the matrix of pathways and indicators described in NOAA Fisheries (1996).

Information related to biological requirements for LCR chinook salmon and LCR steelhead can be found in Busby *et al*. (1996) and NOAA Fisheries (1998a, 1998b, and 1998c). Presently, the biological requirements of listed species are not being met under the environmental baseline. As a general matter, to improve the status of the listed species, improvements in the functional condition of habitat are needed.

2.1.3 Environmental Baseline

The environmental baseline is the current set of conditions to which the effects of the proposed action are then added. Environmental baseline is defined as "the past and present impacts of all Federal, State, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 C.F.R. 402.02).

WSDOT conducted an evaluation within the action area of conditions for chinook and steelhead trout, using the guidance of *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996). This evaluation assessed various baseline indicators and determined whether the proposed project would restore, maintain, or degrade existing baseline conditions at the watershed and project area level.

Most of the environmental baseline indicators for Silver Creek downstream of SR 12 are categorized as properly functioning or at risk. Only the "physical barriers" indicator is not properly functioning. The project would maintain most of the indicators because the project will not affect those indicators. For three indicators, environmental conditions would be maintained because conservation measures will be implemented to avoid, minimize or compensate for potential impacts. For the "physical barriers" indicator, environmental conditions will improve because the barrier will be removed.

Once the barrier is removed and anadromous fish will have access to the upper Silver Creek watershed. There, they will encounter habitat with substantially more "at risk" or "not properly functioning" indicators. Active management in the upper watershed, such as placement of instream structure and planting of riparian vegetation, would be required to provide habitat comparable to that currently found in Sliver Creek below SR 12.

2.1.4 Status of the Species

2.1.4.1 Lower Columbia River Chinook

In 1999, the LCR ESU chinook salmon was listed as threatened under the ESA (50 Fed. Reg. 14308; March 24, 1999). This ESU, which encompasses all drainages of the LCR, includes 14 fall chinook stocks. Twelve of these stocks are currently classified as healthy, while the two Toutle River stocks are considered depressed (WDF *et al*.1993b). Factors for the decline of this ESU include degradation to spawning gravel quality and stability, thermal barriers during upstream migration, and modified winter flows.

Most fall-run fish in the LCR chinook salmon ESU emigrate to the marine environment as subyearlings (Reimers and Loeffel 1967, Howell *et al.* 1985, WDF *et al.* 1993a). Returning adults that emigrated as yearling smolts may have originated from the extensive hatchery programs in the ESU. It is also possible that modifications in the river environment have altered the duration of freshwater residence. Coded Wire Tag (CWT) recoveries of LCR ESU fish suggest a northerly migration route, but (based on CWT recoveries) the fish contribute more to fisheries off British Columbia and Washington than to the Alaskan fishery. Tule fall chinook salmon return at adult ages 3 and 4; "bright" fall chinook return at ages 4 and 5, with significant numbers returning at age 6. Tule and bright chinook salmon are distinct in their spawn timing.

As in other ESUs, chinook salmon have been affected by the alteration of freshwater habitat (Bottom *et al.* 1985, WDF *et al.* 1993a, Kostow 1995). Timber harvesting and associated road building peaked in the 1930s, but effects from the timber industry remain (Kostow 1995). Agriculture is widespread in this ESU and has affected riparian vegetation and stream hydrology. The ESU is also highly affected by urbanization, including river diking and channelization, wetland draining and filling, and pollution (Kostow 1995).

The LCR ESU has been subject to intensive hatchery influence. Hatchery programs to enhance chinook salmon fisheries in the LCR began in the 1870s, releasing billions of fish over time. That equals the total hatchery releases for all other chinook ESUs combined (Myers *et al.* 1998). Although most of the stocks have come from inside the ESU, more than 200 million fish from outside the ESU have been released since 1930 (Myers *et al.* 1998).

Prior to construction of the Cowlitz River Dam in 1963, Cowlitz River fall chinook migrated far up the river (U.S. Army Corps of Engineers 1948). Since its construction, however, the dam has acted as a barrier to the natural migration of anadromous species (Wade 2000). In 1969 WDFW began collecting adult fish at the salmon hatchery barrier dam about 1.5 miles downstream from Mayfield Dam and hauling them upstream to various release points. Consequently, chinook currently have access to Mayfield Lake and tributaries such as Silver Creek. These fish would belong to the LCR chinook ESU. The actual number of fish transported upstream varies every year. In 2000, a fairly typical year, 1,000 to 1,400 fall chinook adults, 1,092 fall jacks, 11,482 coho, and 902 steelhead were released upstream of Mayfield Dam in the Tilton River, near Morton (La Riviere pers. comm.). In 2001, because the Tilton was very low, anadromous fish were released in Mayfield Lake near Kinswa State park, near the mouth of the Tilton River.

2.1.4.1.1 Population Trends and Risks

For the LCR chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.98 to 0.88, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000). NOAA Fisheries estimated the risk of absolute extinction for nine spawning aggregations, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness = 0), the risk of absolute extinction within 100 years ranges from zero for the Sandy River late run and Big Creek to 1.00 for Mill Creek (Table B-5 in McClure *et al.* 2000). At the high end, assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness = 100 percent), the risk of absolute extinction within 100 years is 0.99 for all but one of nine spawning aggregations (zero for the Sandy River late run; Table B-6 in McClure *et al.* 2000).

2.1.4.2 Lower Columbia River Steelhead

In 1998, LCR ESU steelhead was listed as threatened under the ESA (63 Fed. Reg. 11798; March 19). In Washington, the LCR steelhead occupy tributaries to the Columbia River (CR) between the Cowlitz and Wind Rivers. Steelhead from the Little and Big White Salmon Rivers are not included.

LCR steelhead are of the coastal genetic group, and a number of genetic studies have shown that they are part of a different ancestral lineage than inland steelhead from the CR Basin. Genetic data also show steelhead from this ESU to be distinct from steelhead from the upper Willamette River and coastal streams in Oregon and Washington. This ESU is composed of both winter- and summer-run steelhead. Hatchery populations considered part of the ESU include late-spawning Cowlitz Trout Hatchery stock (winter-run) and Clackamas River Oregon Department of Fish and Wildlife stock #122. There is widespread production of hatchery steelhead within the ESU. Data indicate that hatchery fish represent approximately 50 percent of the total escapement for this ESU (Busby *et al*. 1996).

Though populations have declined, steelhead are still found throughout much of their historic range in the ESU. Fourteen stocks of steelhead within the LCR ESU were identified as depressed based on chronically low or short-term, severe declines in wild spawner escapement levels (WDF *et al.* 1993a). Factors leading to the decline of the species include logging, agriculture, mining, and urbanization, all of which contribute to the degradation and loss of steelhead habitat. Other factors, such as incidental harvest mortality from sport and commercial fisheries, hatchery introgression, predation of smolts and returning adults, construction of dams, and the eruption of Mt. St. Helens have also contributed to this ESU's decline.

The lower reaches of the CR are highly modified by urbanization and dredging for navigation. The upland areas covered by this ESU are extensively logged, affecting water quality in the smaller streams used primarily by summer runs. In addition, all major tributaries used by LCR steelhead have some form of hydraulic barrier that impedes fish passage. Barriers range from impassible structures in the Sandy River basin that block access to extensive, historically occupied, steelhead habitat, to passable but disruptive projects on the Cowlitz and Lewis rivers.

The Biological Review Team (BRT 1997) viewed the overall effect of hydrosystem activities on this ESU as an important determinant of extinction risk.

Many populations of steelhead in the LCR ESU are dominated by hatchery escapement. Roughly 500,000 hatchery-raised steelhead are released into drainages within this ESU each year. As a result, first-generation hatchery fish are thought to make up 50 percent to 80 percent of the fish counted on natural spawning grounds. The effect of hatchery fish is not uniform, however. Several runs are mostly hatchery strays (*e.g.*, the winter run in the Cowlitz River [92 percent] and the Kalama River [77 percent] and the summer run in the North Fork Washougal River [50 percent]), whereas others are almost free of hatchery influence (the summer run in the mainstem Washougal River [0 percent] and the winter runs in the North Fork Toutle and Wind rivers [0 percent to 1 percent]).

Cowlitz River steelhead used the river upstream of Mayfield Dam prior to dam construction in 1963. Steelhead were then known to use extensive spawning areas in the mainstem of the stream and to ascend to the point of origin of the mainstem at the confluence of the Ohanopecosh River and Clear Fork (U.S. Army Corps of Engineers 1948). The Cowlitz River winter steelhead stock is a mixed stock due to the activities of the Cowlitz River Salmon Hatchery, established in 1967 to mitigate for upstream habitat losses (chiefly dam construction). Although the stock is currently depressed, it is expected that with steelhead establishment in the Upper Cowlitz, it should be possible to maintain a wild population of 6,000 to 7,000 adult fish (WDFW 1993c). Between 1995 and 1998, 2,285 summer steelhead and 3,389 winter steelhead returned to the Cowlitz Salmon Hatchery and Cowlitz Trout Hatchery (Streamnet 2001b).

While no formal surveys for anadromous fish have been conducted on Silver Creek, a dead steelhead was found at the mouth of Silver Creek in 2001 (K. Jorgensen, pers. comm). WSDOT biologists plan to conduct surveys for salmonids in Silver Creek in 2002.

2.1.4.2.1 Population Trends and Risks

For the LCR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.98 to 0.78, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000). NOAA Fisheries has also estimated the risk of absolute extinction for seven of the spawning aggregations, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (*i.e.*, hatchery effectiveness = 0), the risk of absolute extinction within 100 years ranges from zero for the Kalama River summer run and the Clackamas River and Kalama River winter runs to 1.00 for the Clackamas River summer run and the Toutle River winter run (Table B-5 in McClure *et al.* 2000). Assuming that the hatchery fish spawning in the wild have been as productive as wild-origin fish (hatchery effectiveness = 100 percent), the risk of absolute extinction within 100 years rises to 1.00 for all but one population (the risk of extinction is 0.86 for the Green River winter run; Table B-6 in McClure *et al.* 2000).

The relationship of the baseline to the current status is that the baseline habitat conditions are contributing to the depressed status of listed CR salmonid species and are insufficient to allow

recovery of those species. Habitat improvements, among other actions, must be taken in order to satisfy the ESA mandate of recovering species to the point that they no longer need ESA protections.

2.1.5 Effects of the Proposed Action

The proposed culvert replacement project on Silver Creek is likely to adversely affect LCR chinook and LCR steelhead. The effects of an action are "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline."(50 C.F.R. 402.02).

This project has potential for adverse affects to listed salmonids. Though work is planned during summer low-flow conditions, the project will involve work within the wetted channel of Silver Creek. Chinook salmon and steelhead occur within the action area, thus they might be affected directly or indirectly, by negative and/or beneficial project effects impacting habitat elements, or individual fish.

2.1.5.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action, and include the effects of interrelated actions and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated.

Generally, the direct effects of this project are caused by construction activities in or adjacent to Silver Creek. While juvenile and adult steelhead and juvenile chinook are likely to inhabit the action area during the proposed construction period in low numbers, the negative effects associated with the proposed project are likely to be short in duration and will be minimized through restrictions in timing and duration of construction.

2.1.5.1.1 Safe Passage Due to Isolation and Handling

Methods used to isolate fish from an area can significantly impact fish, if specific protective measures are not taken. The methods for isolating the work area from the active stream can range from use of inflatable bags and sandbags to sheet piling of various materials. Redirecting flow might strand fish rearing along stream margins. Invertebrate prey production at the location of bag or sheet pile placement will be affected for the duration of the action. Poorly screened intake structures can cause impingement of salmonids and subsequent injury or mortality. Capture and release methods can also injure or kill individual fish. For example, electrofishing can result in direct mortality of salmonids. In Oregon, short-term mortality (within 72 hours) of brook trout (*Salvelinus fontinalis*) was 10 percent after single-pass electrofishing (Mahoney 1997). Physical injuries from electrofishing include internal hemorrhaging, spinal misalignment, or fracture of vertebrae. Generally, the relative effects of electrofishing at the population level remain unknown.

To minimize the adverse effects of isolation and fish handling, the contractor will employ a trained fish biologist to supervise the isolation and movement of fish from the in-water work zone. Techniques will include the use of block nets to isolate the work areas, and seines and dip nets to capture and relocate fish. The contractor might use an electro-shocker after a thorough netting of each work area has taken place, in order to determine if additional salmonids remain within the in-water work area. Electrofishing wi

2.1.5.1.2 Water Quality

Potential negative effects from grading/excavation and removing riparian vegetation include temporary increases in suspended sediment levels and turbidity. Short-term negative effects of excess suspended sediment include: sub-lethal effects (*e.g.*, elevated blood sugars and cough rates (Servizi and Martens 1992), physiological stress and reduced growth, loss of inter-gravel cover for fish (Spence *et al.* 1996), area avoidance by juvenile salmonids (Bisson and Bilby 1982; Servizi and Martens 1992). Additionally, short-term pulses of suspended sediment have been shown to influence territorial gill-flaring, and feeding behavior of salmon under laboratory conditions (Berg and Northcote 1985). The deposition of fine sediment can significantly degrade in-stream spawning habitat and reduce survival of steelhead from egg to emergence (Phillips *et al*. 1975). Elevated turbidity levels can reduce the ability of salmonids to detect prey and can cause gill damage (Sigler 1980; Lloyd *et al.* 1987). Moderate turbidity levels (11 to 49 NTU's) also may cause juvenile steelhead and coho to leave rearing areas (Sigler *et al.* 1984).

WSDOT will restrict the timing of construction to reduce the likelihood of fish presence, and use the erosion-control measures identified in the BA in order to reduce sediments entering the water, to minimize the potential negative impacts to salmon. If listed species are present during construction, it is expected they will either seek refugia or avoid those portions of stream with high turbidity and sediment levels. In order to minimize short-term water quality impacts the WSDOT's contractor will implement the following measures:

- The source for washed gravel or other fill to be used in the channel following construction will be free of rock, fines, soil, or other extraneous material, per standard WSDOT specifications for material placement under Hydraulic Project Approval (HPA) authorization.
- The contractor will comply with all elements of the TESC in order to protect surface waters from delivery of sediment from exposed soil. The WSDOT Inspector and the contractor's TESC lead will be monitored for compliance with the TESC. The TESC lead will remain onsite during construction activities.
- No water from Silver Creek will be used for any construction purposes, such as dust control or compaction.
- Clearing of vegetation will occur in the immediate vicinity of the project only, to minimize exposed soils.
- Clearing of woody vegetation will be limited to the removal of five four-inch diameter red alders.
- WSDOT will hydroseed and replant all disturbed areas following construction in accordance with a planting plan, to ensure that noxious weeds are excluded from the site, and that native plants are used to restore riparian and roadside areas.

Measures addressing fuel, chemical, or other hazardous spills curing construction include:

- The contractor will be required to prepare and observe a spill prevention, control, and countermeasures (SPCC) plan.
- WSDOT will include into the special provisions of the contract, that requires all equipment to be stored, refueled, and repaired a minimum of 150 feet away from Silver Creek.
- The SPCC plan will include such measures as maintaining equipment in good condition, conducting daily inspections for leaks, and keeping a spill response kit onsite.

Based on these provisions NOAA Fisheries expects that turbidity and sedimentation produced by this action would be short-lived, returning to baseline levels soon after construction is over. Furthermore, NOAA Fisheries expects that long term impacts from turbidity and sediment would not occur. This project is not expected to improve or degrade turbidity and sediment levels over the baseline condition within Silver Creek.

2.1.5.1.3 Interrelated and Interdependent Effects

Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. 50 C.F.R. 404.02.

This project consists entirely of the replacement of a culvert to eliminate a fish-passage barrier, and, consequently, interrelated or interdependent effects are not anticipated to result from the project.

2.1.5.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects might include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. 50 C.F.R. 402.02.

2.1.5.2.1 Improved Passage & Increased Rearing Habitat

While several partial barriers will remain farther upstream, this fish-passage barrier removal project will result in a gain of approximately 42,000 square meters (approximately 5,000 linear meters) of rearing habitat for steelhead and chinook that are transported above Mayfield Dam. Fish-passage barrier removal will improve passage, thereby improving over the existing baseline indicator for physical barriers. The conditions within the re-opened habitat, however, are more degraded than the conditions below the SR12 culvert.

2.1.5.2.2 Riparian and Fisheries Habitat

The proposed action will require the removal of five red alders less than five inches dbh. Replacement trees will planted at project completion. Riparian vegetation links terrestrial and aquatic ecosystems, influences channel processes, contributes organic debris to streams, stabilizes streambanks, and moderates variability in water temperatures (Gregory *et al.* 1991). Extensive removal of vegetation may increase water temperatures, degrading habitat values in the action area. Elevated water temperatures may influence numerous attributes of salmonids including

physiology, growth and development, life history patterns, disease, and competitive predator-prey interactions (Spence *et al.* 1996). Loss of vegetation also may reduce allochthonous inputs to the stream. Removal of riparian vegetation also reduces the amount of wood that can be contributed to a stream system. Woody debris provides essential functions in streams including the formation of habitats. Additionally, the removal of vegetation decreases streambank stability and resistance to erosion. For this project, because the removal of riparian vegetation is limited to five small alders within 50 feet of the banks, it will have a discountable impact on Silver Creek riparian reserves, stream temperatures, and large woody debris recruitment. Replanting the trees will ensure that the temporal duration of any impact from the vegetation removal is insignificant.

2.1.6 Cumulative Effects

Cumulative effects are defined as "those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 C.F.R. 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Non-Federal activities of the same type identified as factors for decline by NOAA Fisheries and within the action area are expected to increase with a projected 34 percent increase in human population over the next 20 years in Washington (DNR 2000). Thus, NOAA Fisheries assumes that future private and State actions will continue within the action area, but at increasingly higher levels as population density climbs. Thus, factors for decline will persist and increase, putting additional pressure on populations of listed species by adding to existing habitat degradation, reducing carrying capacity, and adding to levels of injury and mortality to listed salmonids.

2.1.7 Conclusion

The short-term direct effects from the increased sediment caused by removing the existing culvert and installing the bottomless concrete structure, and effects from removing fish from the in-water construction areas, will be minimized through the use of work timing restrictions and best management practices in the design and construction. Because the short-term adverse effects of the proposed action are limited, they do not jeopardize the species. Moreover, they are mitigated by the long term beneficial effect of proposed action on listed species. Therefore the project, when taken together with injury and mortality from the baseline and the cumulative effects, is not likely to jeopardize the continued existence of LCR steelhead or LCR chinook salmon. The no jeopardy determination is based on WSDOT compliance with the following: 1) timing restrictions related to in-water construction are expected to minimize impacts to fish and their habitat, 2) culvert removal and replacement will improve fish passage, thereby improving baseline indicators for physical barriers, 3) Riparian vegetation removal will be replaced. NOAA Fisheries concludes that the proposed action is not likely to impair properly functioning habitat or appreciably reduce the functioning of already impacted habitat. Furthermore, NOAA Fisheries concludes that the proposed action is unlikely to negatively influence existing population trends or risks in the action area. Overall, the proposed activities are not expected to appreciably reduce the likelihood of survival and recovery of LCR steelhead or LCR chinook salmon.

2.1.8 Reinitiation of Consultation

This concludes consultation for the Silver Creek culvert replacement project. Consultation must be reinitiated if the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16). To reinitiate consultation, the FHWA should contact the Habitat Conservation Division (Washington Branch Office) of NOAA Fisheries. In instances where the amount or extent of authorized take is exceeded, any operation causing such take must cease pending conclusion of the reinitiated consultation.

2.2 Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to section 4 (d) of the Act prohibit the take of endangered and threatened species without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined as significant habitat modification or degradation that results in death or injury to listed species by "significantly impairing behavioral patterns such as breeding, spawning, rearing, migrating, feeding, and sheltering" (50 C.F.R. 222.102). Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such takings is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the effects of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize take and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of Anticipated Take

Listed LCR steelhead and chinook are reasonably likely to occur in the action area, although in low numbers. Therefore, the proposed action is reasonably certain to result in incidental take through harm and harassment of juvenile and adult LCR steelhead and LCR chinook salmon. The proposed action includes measures to reduce and avoid take. Any residual take must be minimized through the Reasonable and Prudent Measures (RPMs) identified below. Though the mechanisms of take have been analyzed above, the exact numerical amount of take attributable to these mechanisms is difficult to determine, and therefore has not been quantified.

Because the quantity of fish taken cannot be estimated for the proposed action, NOAA Fisheries identified the extent of harm by tracking the temporal and spatial extent of habitat effects. The spatial and temporal extent of these effects provides a habitat-based surrogate for estimating the amount of take. As such, these estimates represent the limits on incidental take that will be authorized through this Incidental Take Statement. Therefore, should any one of these limits be

exceeded during the construction of the project, work must stop and the action agency must reinitiate consultation.

For water quality effects (increased turbidity), take from this mechanism is anticipated to occur only within 300 feet downstream from the point of construction. Should increased turbidity from project construction be observed beyond this extent, work must stop and the action agency must reinitiate consultation. For effects on riparian habitat, the removal of five trees represents the extent of allowed management. Should more vegetation need to be removed, the action agency must reinitiate consultation. Finally, should any dead or injured fish be observed during worksite isolation procedures, NOAA Fisheries must be contacted. The temporal extent of take from in-water work is anticipated to occur between July 1, and September 30. Should work need to occur outside of this window, the action agency must reinitiate consultation.

2.2.2 Reasonable and Prudent Measures

The NOAA Fisheries believes that the following reasonable and prudent measures (RPM) are necessary and appropriate to minimize incidental take of LCR steelhead and LCR chinook:

1. FHWA will minimize take from construction by applying Best Management Practices to avoid or minimize disturbance to riparian and aquatic systems.

2. FHWA will minimize take by providing appropriate post-project monitoring and reporting of project impacts with NOAA Fisheries.

3. FHWA will minimize take from isolating and electrofishing the work area.

2.2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the FHWA must ensure that WSDOT complies with the following terms and conditions, which implement the RPMs described above. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to LCR steelhead and LCR chinook. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure No. 1:

    1.1 the FHWA will ensure that WSDOT confines construction to the minimum area necessary to complete the project.

    1.2 the FHWA will ensure that WSDOT will further reduce impacts from inwater construction by completing its work within the active channel within a four week period.

    1.3 the FHWA will ensure that WSDOT complies with all provisions of the state-issued Hydraulic Project Approval (HPA) for this project, and will have the HPA available on site during the construction period. WSDOT will bring conflicts between permit conditions and these terms and conditions to the attention of WDFW, the FHWA, and the NOAA Fisheries for resolution prior to beginning project construction. Extensions of the

in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NOAA Fisheries.

1.4 the FHWA will ensure that, except for the initial work to install stream isolation structures (*i.e.* coffer dams, bypass flow devices, pumps and screens etc.), WSDOT conducts all work to remove, repair, and restore fish passage in isolation from flowing waters. WSDOT will have a fish screen installed, operated and maintained in accordance to NOAA Fisheries' fish screen criteria on any water intake structure authorized under this Opinion.[1]

1.5 the FHWA will ensure that WSDOT develops and puts into place prior to significantly altering the action area, a Pollution and Erosion Control Plan (PECP) for each authorized project to prevent point-source pollution from construction operations. The PECP must meet requirements of all applicable laws and regulations and must contain the following:

1. Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
2. Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
3. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
4. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
5. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

1.6 the FHWA will ensure that WSDOT, under high flow conditions, immediately ceases all activities that could cause suspension and delivery of sediments to the stream (except for activities intended to minimize erosion).

1.7 the FHWA will ensure that WSDOT uses the least impacting heavy equipment necessary to accomplish the authorized work (e.g. low ground pressure, minimally sized, rubber tired), and that WSDOT will store, maintain, and fuel such equipment as follows:

1. Clean all equipment that is used for instream work prior to operations below

[1] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996)(guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm). Revision in progress.

the bank-full elevation. External oil and grease will be removed, along with dirt and mud. WSDOT will not discharge untreated wash and rinse water will be into streams and rivers.
2. Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream. Vehicles not in use will be stored in the staging area.
3. Daily inspect all vehicles to be operated within 150 feet of any stream or water body for fluid leaks before leaving the vehicle staging area. Repair any detected leaks before the vehicle resumes operation.
4. Have oil-absorbent pads and personnel trained in spill prevention and control present during equipment operation.

1.8 the FHWA will ensure that WSDOT retains on site any instream large wood or riparian vegetation that is moved or altered during construction, or replace it with a functional equivalent.

1.9 the FHWA will ensure that WSDOT completes earthwork, including drilling, blasting, excavation, dredging, filling and compacting, as follows:

1. Obtain boulders, rock, woody materials and other natural construction materials for the project from outside of the riparian area.
2. During excavation, stockpile native streambed materials above the bankfull elevation for later use. If invert protecting riprap is placed, place native materials over the top of the riprap.
3. Keep streambank grading to the minimum necessary to revegetate and restore bank lines disturbed in the course project activity.
4. Place material removed during excavation only in locations where it cannot enter streams or other water bodies.
5. Complete projects as quickly as possible without compromising the quality of work and stabilize disturbed areas within 3 days of the end of construction.
6. Provide temporary and permanent cover to protect disturbed areas (*e.g.* erosion control and blankets, plastic covering, mulching, seeding[2], or sodding). Between June 1 and September 30, install temporary cover if any cleared or graded area is to remain unworked for more than seven days; between Oct. 1 - May 31 install temporary cover if any cleared or graded area is to remain unworked for more than two days. Temporary cover shall be completed within 12 hours of cessation of work in areas that will remain un-worked for the specified time periods. As long as the covering remains in place, planting or seeding is not required in covered areas until conditions are appropriate for growth. All disturbed areas will be re-planted with native vegetation within three days of the end of construction, unless covered or otherwise stabilized with appropriate erosion and sediment control measures. Planting shall be completed no later than April 15 of the year following construction.
7. During project construction, inspect all erosion-control devices to ensure that they

[2] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

are effective. The inspection schedule shall be daily during the rainy season, weekly during the dry season, monthly on inactive sites. Erosion control measures will be judged ineffective when turbidity plumes from proposed activities are evident in waters occupied by listed salmonids during any part of the year. If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary. If soil erosion and sediment resulting from construction activities is not effectively controlled, FHWA will ensure that WSDOT limits the amount of disturbed area to that which can be adequately controlled.

1.10 the FHWA will ensure that WSDOT cleans up and restore the site, in the following manner:

1. Return all damaged areas to pre-work conditions, including reestablishment of original streambank lines, and contours.
2. Stabilize at finished grade all exposed soil surfaces, including construction access roads and associated staging areas, with mulch and native herbaceous seeding prior to October 1. Native woody vegetation will be planted prior to April 15. On cut slopes steeper than 1v:2h, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, 1v:2h a hydro-mulch will be applied at 1.5 times the normal rate.
3. Plant disturbed areas with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.
4. Arrange plantings randomly within the revegetation area.
5. Complete all plantings before April 15 of the year following construction.
6. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
7. Achieve an 80 percent survival of plantings after three years. If planting success has not been achieved after 3 years, submit an alternative plan to the FHWA to address temporal loss of function.
8. Continue plant establishment monitoring until site restoration success has been achieved.

2. To implement Reasonable and Prudent Measure No. 2:

2.1 the FHWA shall ensure that WSDOT uses qualified personnel to monitor fish passage conditions at culvert replacements and modifications for passage of the target fish species and life history stage during summer, high (greater than or equal to the 5-year flow event) and bank-full discharge or for six years, whichever is sooner. Monitoring shall document the hydraulic conditions (depth; velocity; elevation drop at inlet, outlet, and within the culvert/under the bridge) around and through the structure at each of the stated flow thresholds. In the event that the project does not meet the duration, velocity, flow, depth, and elevation drop standards to allow passage of the target fish species and life history stage, the permittee shall implement corrective actions necessary to allow fish passage of the target species at the project site.

2.2 the FHWA shall ensure that WSDOT project reports contain the following information:

1. A report of any seine, electroshocking, and release activity including:
2. The name and address of the supervisory fish biologist;
3. Methods used to isolate the work area and minimize disturbances to ESA-listed species;
4. Stream conditions prior to and following placement and removal of barriers;
5. The means of fish removal;
6. The number of fish removed by species (salmonids);
7. The location and condition of all fish released;
8. Any incidence of observed injury or mortality; and
9. Starting and ending dates for work performed under the permit.

2.3 the FHWA shall ensure that WSDOT documents the following conditions following site restoration:

1. Finished grade slopes and elevations.
2. Log and rock structure elevations, orientation, and anchoring, if any.
3. Planting composition and density.
4. A plan to inspect and, if necessary, replace failed plantings and structures for a period of five years.
5. A narrative assessment of the project's affects on natural stream function.
6. Photographic documentation of environmental conditions at the project site before, during and after project completion. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

The annual report will be submitted to: Branch Chief - Washington Branch, National Marine Fisheries Service, Attn: WSB-01-533, 510 Desmond Dr. SE, Lacey, WA 98503

3. To implement Reasonable and Prudent Measure No. 3, FHWA will ensure that electrofishing will comport with NOAA Fisheries' Backpack Electrofishing Guidelines (December 1998).

3.0 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions,

authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
- NOAA Fisheries must provide conservation recommendations for any Federal or State activity that may adversely affect EFH (§305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 C.F.R. 600.110). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 C.F.R. 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of Essential Fish Habitat

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for two species of federally-managed Pacific salmon: chinook, coho salmon (*O. kisutch*), and pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in Sections 1.2 and 1.3 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of chinook and coho salmon.

3.4 Effects of Proposed Actions

As described in detail in Section 2.1.5 of this document, the proposed action may result in detrimental short-term impacts to habitat parameters for chinook salmon. These effects also apply to coho, since the habitat in the action area is used by both species in a similar manner. These adverse effects are:

1. Short-term degradation of water quality in the action area due to elevated turbidity, erosion and sedimentation, and release of contaminants during in-water construction.

2. Short-term degradation of habitat due to removal of the culvert and installation of the bottomless concrete structure and the removal of riparian trees and vegetation.

3.5 Conclusion

NOAA Fisheries believes that the proposed actions may adversely affect EFH for chinook and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions that would adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the Biological Assessment will be implemented by the WSDOT, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. Consequently, NOAA Fisheries recommends that the WSDOT implement the following conservation measures to minimize the potential adverse effects to EFH for chinook and coho salmon:

1. Adopt Terms and Conditions 1.1 through 1.2, 1.4 through 1.7, and 1.9.4 through 1.9.7 as described in Section 2.2.3, to minimize EFH adverse affects #1.

2. Adopt Terms and Conditions 1.8, 1.9.1 through 1.9.3, and 1.10 as described in Section 2.2.3, to minimize EFH adverse affects #2.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 C.F.R. 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response

must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 C.F.R. 600.920(k)).

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